

Title (en)

Local integration of non-linear sheet in integrated circuit packages for ESD/EOS protection

Title (de)

Lokale Integration eines nichtlinearen Blechs in integrierten Schaltpaketen für ESD/EOS-Schutz

Title (fr)

Intégration locale de feuille non linéaire dans des ensembles de circuits intégrés pour une protection ESD/EOS

Publication

EP 1990834 B1 20120815 (EN)

Application

EP 08100931 A 20080125

Priority

US 92860407 P 20070510

Abstract (en)

[origin: EP1990834A2] A packaged semiconductor device (200) with a substrate (220) having, sandwiched in an insulator (221), a flat sheet-like sieve member (240) made of a non-linear material switching from insulator to conductor mode at a preset voltage. Both member surfaces are free of indentations; the member is perforated by through-holes, which are grouped into a first set (241) and a second set (242). Metal traces (251) over one member surface are positioned across the first set through-holes (241); each trace is connected to a terminal on the substrate top and, through the hole, to a terminal on the substrate bottom. Analogous for metal traces (252) over the opposite member surface and second set through-holes (242). Traces (252) overlap with a portion of traces (251) to form the locations for the conductivity switches, creating local ultra-low resistance bypasses to ground for discharging overstress events (ESD,EOS).

IPC 8 full level

H01L 23/62 (2006.01); **H01L 23/60** (2006.01)

CPC (source: EP US)

H01L 23/60 (2013.01 - EP US); **H01L 23/62** (2013.01 - EP US); **H05K 1/0259** (2013.01 - EP US); **H01L 2224/0554** (2013.01 - EP US); **H01L 2224/0557** (2013.01 - EP US); **H01L 2224/05571** (2013.01 - EP US); **H01L 2224/05573** (2013.01 - EP US); **H01L 2224/056** (2013.01 - EP US); **H01L 2224/16225** (2013.01 - EP US); **H01L 2924/00014** (2013.01 - EP US); **H01L 2924/13034** (2013.01 - EP US); **H01L 2924/15311** (2013.01 - EP US); **H05K 2201/0738** (2013.01 - EP US); **Y10T 29/49105** (2015.01 - EP US)

Cited by

EP2758992A4; EP2337070A1; WO2013044096A2; WO2011080093A1

Designated contracting state (EPC)

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EP 1990834 A2 20081112; **EP 1990834 A3 20110831**; **EP 1990834 B1 20120815**; US 2008278873 A1 20081113; US 2011075306 A1 20110331; US 7872841 B2 20110118

DOCDB simple family (application)

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